SIEMENS

SIREMOBIL Compact

SP

Installation and Setting Instructions

Attaching the area dose measurement device

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General

Safety note

⚠WARNING

Avoiding minor to severe physical injuries - which can lead to death and avoiding material damage.

The product-specific safety notes stated in the system folder and the safety notes stated in ARTD Part 2 must be complied with.

After conclusion of all work and after attachment of all covers perform the protective ground wire test according to ARTD-002.731.17. The protective ground wire resistance must not exceed 0.2 Ohm.

Checks or settings which must be performed with X-ray radiation switched on are marked by the radiation symbol ☢. Radiation protection clothing must be worn when performing operations thus marked.

Additional note

These instructions apply to retrofitting the area dose measurement device to a SIREMOBIL Compact only.

Parts required

- Area dose measurement device retrofit kit with PC board D16 and dose measurement chamber and materials for securing it — 97 97 101 G 5321

Measurement and auxiliary instruments required

- Service PC
- Service software (refer to log book)
- Connection cable service PC to host e. g. PC connecting cable 99 00 440 RE999
- Protective conductor meter e. g. Bender Safety tester 51 38 727 Y0766
- Dose measurement instrument. e. g. PTW-Diados 97 17 612 Y0388
- Centering cross e. g. 96 60 051 RE999

Tools required

- Tool kit (refer to ARTD / part 3)
- 1 set of Allen keys

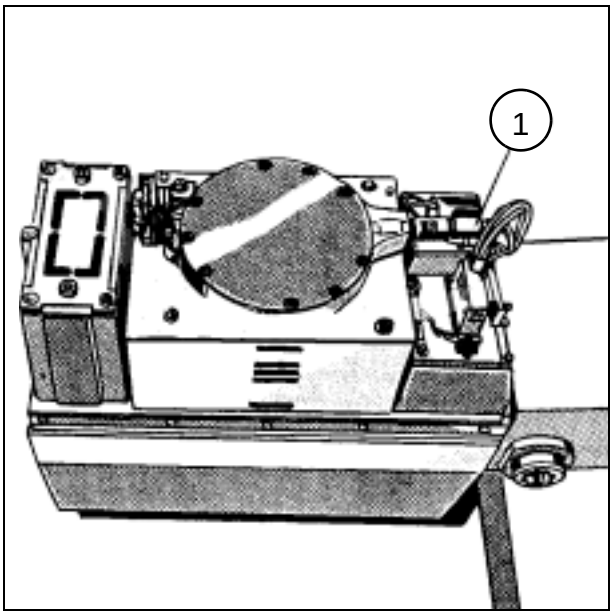

Fig. 1

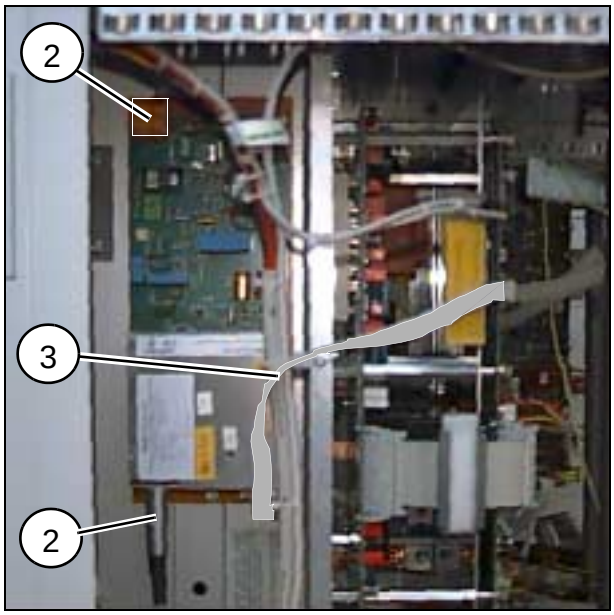

Fig. 2

Installation

Removing the covers

- Disconnect the SIREMOBIL line voltage plug.
- Remove the three cover plates from the basic unit.
- Remove the SIREPHOS cover.
  First, carefully remove the adhesive strip on the side panels of the cover.

Installing the area dose measurement chamber

- Pull the measurement chamber connector (1/Fig. 1) out of the cable tie.
- Place the area dose measurement chamber on the SIREPHOS as shown in Fig. 1.
  The "Focus" label must point toward the X-ray tube.
- Secure the area dose measurement chamber to the SIREPHOS with the enclosed screws.
- Plug the measurement chamber connector (1/Fig. 1) into the measurement chamber.

Installing the measurement board D16

- Install measurement board D16 according to Fig. 2.
- Plug the two connectors (2/Fig. 2) into PC board D16.
- Connect the enclosed ribbon cable to D1.X9 and D16 (3/Fig. 2).

Memoskop Programming SIREMOBIL Compact starting with serial number 2000

NOTE

After selecting the "Disable dose rate selection in User Set Up" parameter, the "Storage of dose on disk" and "Dose on hardcopy output" parameters become available in the Memoskop User Setup and visible to the customer.

- Turn on the SIREMOBIL and wait for the start-up.
- Insert the Memoskop parameter disk (see System folder Register 10) in drive A of the service PC.
- Start the Memoskop service program.
- Click the "Get from Memoskop" button in the main menu. The parameters are transferred from the Memoskop to the Service PC.
- Select the "Others" menu.
- Select "Disable dose rate selection in User Set Up". The Check button is not marked.
- Select "Storage of dose on disk". The Check button is marked.
- Click on the "Back" button. The "Others" window closes.
- Select the "Hardcopy Setup" menu.
- Select "Dose on Hardcopy output". The Check button is marked.
- Click on the "Back" button. The "Hardcopy Setup" window closes.
- Click on the "Put to Memoskop" button in the main menu. The parameters are transferred from the service PC to the Memoskop and saved.
- Select the "File" menu.
- Select the sub-menu "Save" and save the parameters on disk.
- Exit the Memoskop service program.
- Turn the SIREMOBIL off and the on again to reset the serial interface.

Programming and adjusting the area dose measurement device

NOTE **This adjustment is used to calibrate the area dose measurement device of the SIREMOBIL Compact display.**

Calculating the CONSTANT parameter (Qt * Kg)

- Read and record the Kg value shown on the electronics unit of the area dose measurement device.
- Read the Qt value on the area dose chamber of the area dose measurement device.
- Multiply these values and record them. The resulting value is the CONSTANT (QT*Kg) value to be programmed.

Programming

- Connect the service PC to the serial interface on board D1.
- Start the service program.
- Select the Adjustment, Parameter menu.
- Select "Diamentor" in the combo box "Parameter Groups:".
- Click "Get from Unit".
- Select "1. Diamentor Existing".
- Select ’yes’ in the "Value actual" field.
- Click "Set Value".
- Select "2. Constant (Qt * Kg)" .
- Enter the parameter you have calculated in the "Value Actual:" field.
- Click "Set Value".
- Click "Put to Unit".
- Click "Save to File".

Checking the programmed values

NOTE

Checking the programmed values will activate the self-test in the electronic system of the area dose measurement device.
This serves to recalibrate the electronic system of the area dose measurement device.

Prerequisites

The Qt * Kg value was checked and is programmed. Refer to Programming.

- Connect the service PC to the serial interface on board D1.
- Start the service program.
- Select the Adjustment, Calibrations... menu.
- Click "Yes" to answer the query.
- Select "Diamentor" in the combo box "Function Group".
- Select "Start Diamentor Test" in the "Available Functions" window and click "Execute".
- Close the status window by clicking on the button "OK".
- Answer the query "Do you want to reset the unit" with clicking on the button "No".
- Press 2 times the key ->0<- at the control panel of the basic unit (reset key for fluoroscopy timer).
- The tested Qt*Kg value is displayed at the monitor of the SIREMOBIL Compact.
- This value must match the programmed CONSTANT (Qt*Kg) value.
  Tolerance: $\pm$ 3 digits.
- By pressing the ->0<- key 2 times, the test is repeated and is displayed again at the monitor.
- The CAL potentiometer on the electronic system of the area dose measurement device can be used to adjust the test value to the calculated and programmed Qt*Kg value.
- Select "Stop Diamentor Test" on the service PC after the adjustment and click "Execute".
- Close the status window by clicking on the button "OK".
- Answer the query "Do you want to reset the unit" with clicking on the button "Yes".
- The test is ended.
- Exit the service program with "Logoff" and "Quit".
- Check the accuracy of the area dose measurement device. Refer to the next page.

NOTE

You must exit the service program with "Logoff" and "Quit" to store the modified parameters to disk as a new file.

Checking the accuracy of the area dose measurement device

Prerequisites

The calibration of the area dose measurement device must have already been performed.

Preparations

- Secure and center the centering cross on the I.I. (Fig. 1).
- Select survey format.
- Select kV mA curve plateau HC1.

- Release fluoroscopy briefly, adjusting the iris on the radiation field to a format of approximately 15 cm diameter.

NOTE **The radiation field must cover the entire area of the area dose measurement chamber.**

- Do not make any further adjustments to the iris.
- Record the average diameter (Fig. 3) of the octagonal area of the radiation field.
- Secure and center the dose measurement chamber of the dose measurement instument (DIADOS...) on the image intensifier (Fig. 2).
- Select kV STOP and enter 70 kV.

Area Dose measurement

- Press the >0< key twice to reset the area dose product display on the Monitor to 0.
- Reset the dose measurement instrument to 0.

- Release fluoroscopy for several seconds. The measured dose K_E should be high enough that the uppermost measurement range of the dose measurement instument (DIADOS...) is utilized fully and the area dose product displayed at the monitor is a multidigit value (>9); if necessary, reset the area dose product display on the Siremobil and the dose measurement instrument and repeat the measurement with a different fluoroscopic time.
- Record the measured dose.
- Record the area dose product displayed on the montor (FDPa).

Calculating the area dose product

- To calculate the measured area dose product:
  (measured area dose product FDPg) = (measured dose K_E) * (average diameter)^2 * 0.785.

Evaluation

Calculate the deviation between the area dose product measured and the area dose product displayed:
The deviation must be < 0.3.

Deviation = [(displayed area dose product FDPa) - (measured area dose product FDPg)] / (measured area dose product FDPg).

For deviations > 0.3, replace the area dose measurement device.

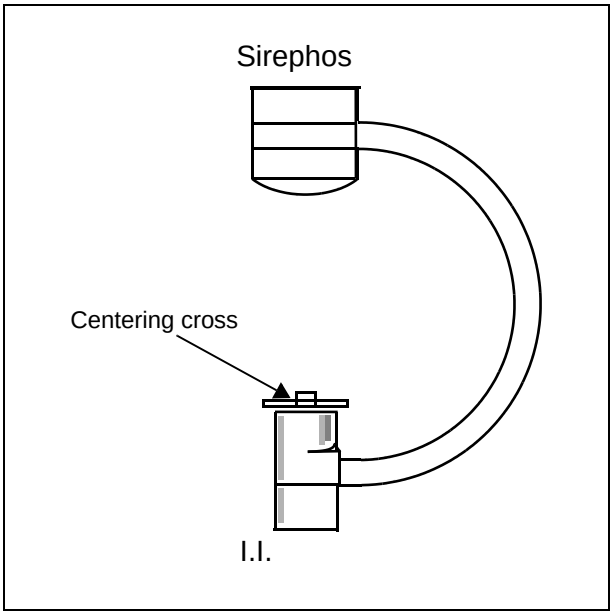

Fig. 3

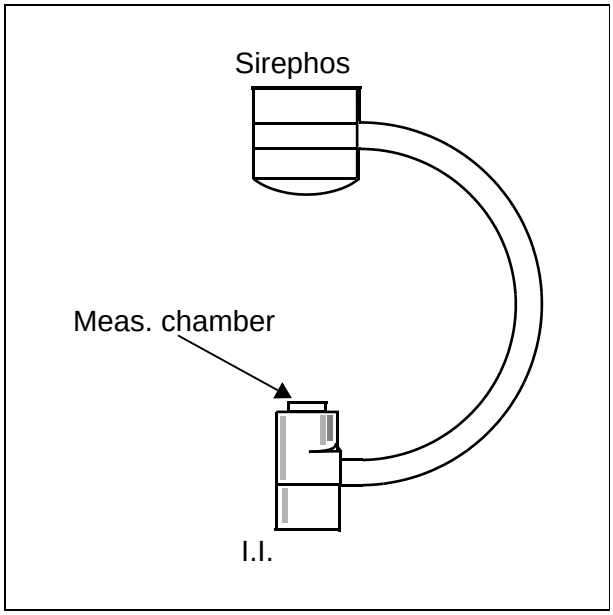

Fig. 4

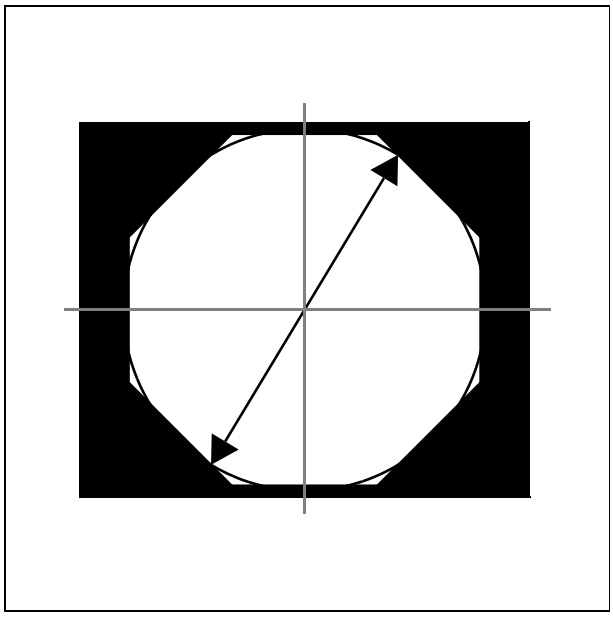

Fig. 5

Final Steps

- Switch off the SIREMOBIL.
- Reinstall all covers.
- Perform the protective conductor test according to ARTD - 022.731.17.. .The protective conductor resistance must not exceed 0.2 Ohm.

Changes to previous version

Page 2	Measuring devices actualized.
Page 6	Corrections in descriptions added.
Page 7	Corrections in descriptions added.
Page 9	Maximum values for the protective conductor resistance added.